



## SERVICE MANUAL

Model Series:

Product Type: LCD TV  
Chassis: ZLD  
Manual Series: CM153  
Manual Part #: 923-03443R1  
Model Line: D  
Product Year: 2001

ZLD15A1  
ZLD20A1

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# PRODUCT SAFETY SERVICING GUIDELINES FOR AUDIO-VIDEO PRODUCTS

## IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-visual service technicians. When servicing this product, under no circumstances should the original design be modified or altered without permission from Zenith Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring, and lead dress must conform to original layout upon completion of repairs. If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it only with the factory specified fuse type and rating. When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB. Always keep wires away from high voltage or high temperature parts.

Special components are also used to prevent x-radiation, shock, and fire hazard. These components are indicated by the letter "x" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by Zenith Electronics Corporation. Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

**CAUTION:** Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

## GENERAL GUIDANCE

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating to protect against personal injury from electrical shocks. It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

Before returning the receiver to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

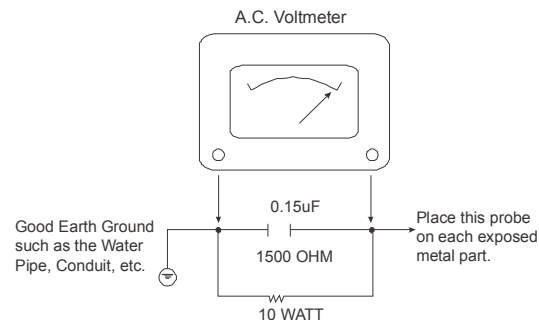
## LEAKAGE CURRENT COLD CHECK (ANTENNA COLD CHECK)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc. If the exposed metallic part has a return path to the chassis, the measured resistance should be between  $1M\frac{1}{2}$  and  $5.2M\frac{1}{2}$ . When the exposed metal has no return path to the chassis the reading must be infinite. Any other abnormality that exists must be corrected before the receiver is returned to the customer.

## LEAKAGE CURRENT HOT CHECK (SEE BELOW FIGURE)

Plug the AC cord directly into the AC outlet. Do not use a line Isolation Transformer during this check. Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts. Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity. Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS at 0.5mA. In case any measurement is out of the limits specified, there is the possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

## LEAKAGE CURRENT HOT CHECK CIRCUIT



## REGULATORY INFORMATION

This equipment, trade name Zenith, model number, IQD27D53T, has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and receiver; Connect the equipment into an outlet on a circuit different from that to which the receiver is connected; Consult the dealer or an experienced radio/TV technician for help.

The responsible party for this device compliance is:

Zenith Electronics Corporation

201 James Record Road

Huntsville, AL 35824, USA

Digital TV Hotline:

1-800-243-0000

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The presence of the DTV certification mark indicates that this product will successfully receive digital television transmissions that conform to any and all of the video formats described in the ATSC Digital Television Standard.

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# SERVICING

## SERVICING PRECAUTIONS

**CAUTION:** Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

### GENERAL SERVICING PRECAUTIONS

1. Always unplug the receiver AC power cord from the AC power source before performing the following.
    - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
    - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
    - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
  2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage-measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
  3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
  4. Do not spray chemicals on or near this receiver or any of its assemblies.
  5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
- CAUTION:** This is a flammable mixture. Unless specified otherwise in this service manual, lubrication of contacts is not required.
6. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
  7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
  8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead. Always remove the test receiver ground lead last.

9. Use with this receiver only the test fixtures specified in this service manual.

**CAUTION:** Do not connect the test fixture ground strap to any heatsink in this receiver.

### ELECTROSTATIC SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic Sensitive Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

# SERVICING

## GENERAL SOLDERING GUIDELINES

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500cF to 600cF.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
  - a. Allow the soldering iron tip to reach normal temperature. (500cF to 600cF)
  - b. Heat the component lead until the solder melts.
  - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid. CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
  - a. Allow the soldering iron tip to reach a normal temperature (500cF to 600cF)
  - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
  - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.  
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
  - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

### IC REMOVE/REPLACEMENT

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

#### REMOVAL

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

#### REPLACEMENT

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

### "SMALL-SIGNAL" DISCRETE TRANSISTOR

#### REMOVAL/REPLACEMENT

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

### POWER OUTPUT, TRANSISTOR DEVICE

#### REMOVAL/REPLACEMENT

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

### DIODE REMOVAL/REPLACEMENT

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

### FUSE AND CONVENTIONAL RESISTOR

#### REMOVAL/REPLACEMENT

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.

3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

## **CIRCUIT BOARD FOIL REPAIR**

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

### *AT IC CONNECTIONS*

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

### *AT OTHER CONNECTIONS*

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least ¼ inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections. CAUTION: Be sure the insulated jumper wire is dressed so it does not touch components or sharp edges.

# SERVICING

## ADJUSTMENTS

This set uses an adapter, so connect the adapter and the set correctly before adjustment. The adjustment must be performed under the correct sequence.

The adjustment must be performed in the circumstance of  $25\pm 5^{\circ}\text{C}$  of temperature  $65\pm 10\%$  of relative humidity if there is no specific designation. The input voltage of the receiver must keep 220V, 60Hz in adjusting. The set must be operated for 30 minutes preliminarily before adjustment if there is no specific designation.

*Note: Heat Run must be performed with the full white signal or TV noise signal in the internal part of the set. The time for Heat Run can be changed owing to production plan.*

### DVCO ADJUSTMENT

Turn the TV on.

(2) Receive the Digital Pattern.

3-2. Adjustment

(1) Select DVCO ADJ by pressing ADJ Key(or SVC Key) of Remote Control for Adjustment.

(2) Press the VOL + Key repeatedly to appear 00K0.

### AUTO RGB ADJUSTMENT

4-1. Preparation for Adjustment

(1) Adjust it after performing DVCO Adjustment.

(2) Receive the Digital Pattern.

4-2. Adjustment

(1) Select AUTO RGB ADJ by pressing ADJ Key(or SVC Key) of Remote Control for Adjustment.

of Remote Control for Adjustment.

(2) Press the VOL + Key repeatedly to appear 00K0.

### RGB LEVEL ADJUSTMENT

5-1. Using Equipment

(1) Pattern Generator(408NPS-READER) which 10 STEP is possible.

(2) A Remote Control for Adjustment

(1) Select RGB LEVEL by pressing ADJ Key(or SVC Key) of Remote Control for Adjustment.

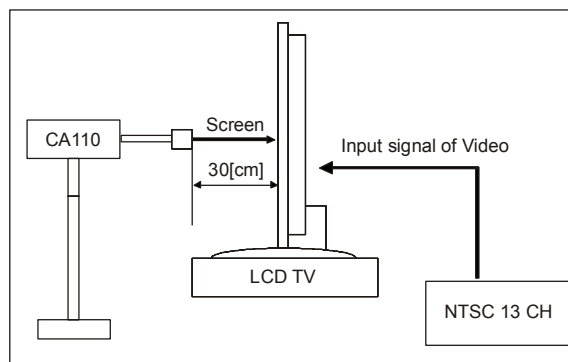
(2) Select it by using VOL + Key.

(3) Adjust that until 9th and 10th STEP is undistinguished by using VOL +/- Key in R-DRIVE item.

(4) Adjust G-DRIVE and B-DRIVE as same way.

(5) When adjustment is finished, escape it by pressing ENTER Key.

## USING METHOD FOR CA-110





# ADJUSTMENT INSTRUCTIONS ZLD15A1

## 1. Application Object

This instruction is for the application to the LCD TV.

## 2. Notes

- (1) This set uses an adapter, so connect the adapter and the set correctly before adjusting.
- (2) The adjustment must be performed in the correct sequence.
- (3) The adjustments must be performed in the circumstance of  $25 \pm 5^{\circ}\text{C}$  of temperature and  $65 \pm 10\%$  of relative humidity unless otherwise specified.
- (4) The input voltage of the receiver must be 220V, 60Hz during adjustment.
- (5) The set must be operated for 30 minutes preliminarily before adjustment unless otherwise specified.

\* "Heat Run" must be performed with the full white signal or TV noise signal in the internal part of the set.

## 3. TV Mode Adjustment

Before entering into the adjustment mode set the TV up with the MENU button as below.

Contrast	85
Brightness	100
Saturation	50
Tint	0

### 3-1. White Balance Adjustment

#### 3-1-1. Required Test Equipment

- (1) A Remote Control
- (2) A Color Analyzer for LCD : CA-110
- (3) A TV Signal Generator : Pattern of 64 (128) tones or Ch. 13 in the company.

#### 3-1-2. Preparation for Adjustment

- (1) This adjustment should be performed 30 minutes later after "Heat Run".
- (2) This adjustment should be performed in a darkroom or in the similar condition.

#### 3-1-3. Low Light Adjustment

- (1) Select Ch.13 .
- (2) Enter into the adjustment mode with the ADJ button.
- (3) Select the Sub-bright and stop adjusting at the moment when Gray 0 and 1 are not distinguished.

Low Light(Black)				Unit-Decimal
IC	IIC Type	Name	Default	Adj. Mode
VPC3230D	IIC 0x52/7:0/	BR	0	No.304
VPC3230D	IIC 0x30/11:0/	ACC_Sat	2930	No.236~237
VPC3230D	Fp 0xDC	Tint	0	No.248

	Red	Green	Blue	White
x	0.63	0.30	0.14	0.32
y	0.34	0.60	0.10	0.34
Brightness:[cd/m <sup>2</sup> ]				150[cd/m <sup>2</sup> ]

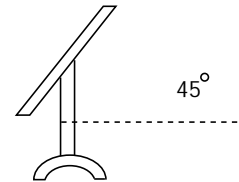
## 4. PC Input Mode Adjustment

### 4-1. Required Test Equipment

- (1) A pattern generator being in proportion to VG819 ; Pattern of 64 tones
- (2) A remote control

### 4-2. Preparation for Adjustment

- (1) Perform "Heat Run" for more than 30 minutes in white pattern.
- (2) **Connect the signal of pattern generator to LCD TV.**
- (3) Lean the set  $45^{\circ}$  backward. (Adjustment is easy.)



- (4) Set the PC mode menu as below.

	Contrast	Brightness
Initial Value	70	100

### 4-3. White Adjustment

- (1) Approve the signal of 64 tones of XGA(1024 \* 768).
- (2) Select all the gain of R, B and G with using ADJ of remote control.
- (3) After making 62 tones, 63 tones and 64 tones not distinguished with using each signal of R, G and B, finish adjusting at the moment when the signal 62, 63 and 64 is distinguished.

	R		G		B		Error
Color Coordinates(x,y)	0.63	0.34	0.30	0.60	0.14	0.10	+/- 0.03
AD9884	0x02		0x03		0x04		Register



## 4-4. Position of Mode Adjustment

Timing of Mode Table

Mode	VGA-60	VGA-67	VGA-72	VGA-75	VGA-85	TEXT-70	SVGA-56	SVGA-60	SVGA-72
H_Total	800	864	832	840	832	900	1024	1056	1040
H_Display	640	640	656	640	640	720	800	800	800
H_Blanking	160	224	176	200	192	180	224	256	240
H_Sync	96	64	40	64	56	108	72	128	120
HPolarity	NEG.	NEG.	NEG.	NEG.	NEG.	NEG.	POS	POS	POS
H_Bp	48	96	120	120	80	54	128	88	64
H_Fp	16	64	16	16	56	18	24	40	56
H-Freq[KHz]	31.469	35.0	37.861	37.5	43.269	31.469	35.156	37.879	48.077
/Clk[MHz]	25.175	30.24	31.5	31.5	36.0	28.324	36.0	40.0	50.0
V_Total	525	525	520	500	509	449	625	628	666
V_Display	480	480	496	480	480	400	600	600	600
V_Blanking	45	45	24	20	29	49	25	28	66
V_Sync	2	3	3	3	3	2	2	4	6
VPolarity	NEG	NEG	NEG	NEG	NEG	POS	POS	POS	POS
V_Bp	33	39	20	16	25	34	22	23	23
V_Fp	10	3	1	1	1	13	1	1	37

Mode	SVGA-75	SVGA-85	XGA-60	XGA-70	XGA-75	MAC-75
H_Total	1056	1048	1344	1328	1312	1152
H_Display	800	800	1024	1024	1024	832
H_Blanking	256	248	320	304	288	320
H_Sync	80	64	136	136	96	64
HPolarity	POS	POS	NEG	NEG	POS	NEG
H_Bp	160	152	136	144	176	224
H_Fp	16	32	160	24	16	32
H-Freq[KHz]	46.875	53.674	48.363	56.476	60.23	49.725
/Clk[MHz]	49.5	56.25	65.0	75.0	78.75	57.283
V_Total	625	631	806	806	800	667
V_Display	600	600	768	768	768	624
V_Blanking	25	31	38	38	32	43
V_Sync	3	3	6	6	3	3
VPolarity	POS	POS	NEG	NEG	POS	NMG
V_Bp	21	27	29	29	28	39
V_Fp	1	1	3	3	1	1

To gain access to the Service menu hold (Menu) key until the menu diappears from the screen then press 9,8,7,6, (Enter).

### Service Menu for ZLD15A1

DVCOAdjust      Auto  
 AutoRGB        Auto  
 ClampLevel      44  
 RGBLevel        Auto  
 VolumeCurve    1 2 3 4 5

### Service Menu for ZLD20A1

0 S-BRTTV        107  
 1 R-Gain         33  
 2 G-Gain         34  
 3 B-Gain         29  
 4 AL30016H      14  
 5 AL30019H      84  
 6 AL3001AH      32  
 7 AL30039H      47  
 8 AL3003CH      115  
 9 S-ConTV        5

# TROUBLE SHOOTING

## 1. General Features

No.	Problem	Possible Cause	Solution
1	Soft touch doesn't function properly	Defective speaker wire and inverter wire	1) Make some space between the speaker wire and the Soft touch Board by sticking the speaker wire to the guide hole of the cabinet. 2) Arrange working state of A1. Tape in the inverter wire and correct working state of the Shield case.
2	Soft touch doesn't function	1) Broken components and soldering of them 2) P101 connector error	1) Check Soft touch with eyes Check and repair soldering 2) Check and repair the P101 connector
3	No screen	Input error of inverter connector	1) Bend the pin legs of P802 connector -> recheck them 2) Check and repair the IC806 SI4925
		P501 and Pin 41 connector slipped out	1) Check and fix P501 connector 2) Check and fix the components at P501 LCD module and at main board. 3) Check Pin41 and check and repair rubber packing
		Cracked components and soldering at tuner board	1) Check and repair tuner board and main board 2) Solder Q301, Q801 and R810
4	Dark screen	1) Defective LCD lamp 2) Defective inverter	1) Replace the inverter 2) Replace the LCD lamp
5	Broken OSD display	Defective font rom of IC502	Replace IC502

## 2. PC Mode

No.	Problem	Possible Cause	Solution
6	Screen noise	Clock or phase being not able to be adjusted	1) Resetting is needed according to the video card of each PC 2) Horizontal noise : adjust phase until no horizontal noise occurs 3) Vertical noise : adjust clock in menu until no vertical noise occurs
7	Screen position error	Screen position error horizontally or vertically	Adjust horizontal and vertical position until the screen displays normally
8	Color beat noise	Soldering AD converter or making it short	Recheck and repair

## 3. TV and external input

No.	Problem	Possible Cause	Solution
9	No sound - Speaker - Earphone	Defective Reset IC of IC603 Defective MSP3400D of IC601	1) Check volume and speaker - Sound comes out only when being input into Audio L/R 2) Check after replacing IC603 3) Replace IC601
10	Video color beat noise	Earphone shield case being touched	Check the mould of shield and JA401, Replace shield case
		Soldering IC901 and IC501	Re-soldering

## PARTS LIST

ZLD15A1

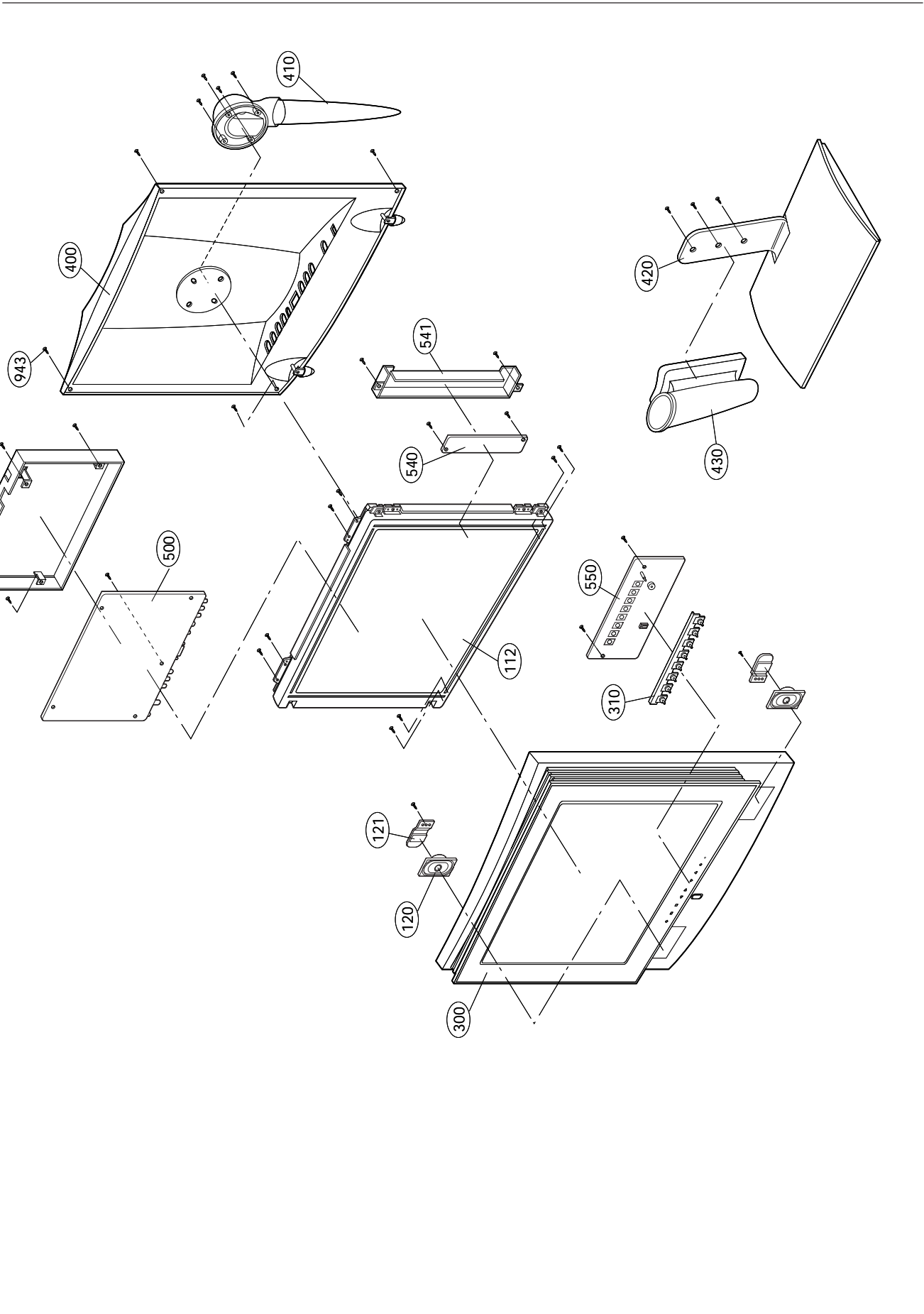
**NOTE: This list will enable you to easily determine the parts used on each Model, Chassis, or Assembly.**

REF	PART#	DESCRIPTION
112	900-10048	LCD(LIQUID CRYSTAL D 151X2-C2TH 151" LGP
120	849-10036	SPEAKER, GENERAL T401SX-095K14 LG C&D
121	812-10136	METAL HOLDER SPK SBHG
174	811-10039	POWER CORD PS204-001 VOLEX UL/C
300	857-10335	CABINET ASSY ZLD15A10 ZENITH
310	959-10102	BUTTON CONTROL 8KEY ABS
400	814-10159	BACK COVER ASSY ZLD15A1
420	812-10137	METAL STAND SECC
430	812-10138	HOLDER STAND ABS AF-303S(04
450	812-10139	COVER STAND ASSY ZLD15A1
500	809-10540	PWB(PCB) ASSY MAIN NF99LA US
521	926-10055	METAL MAIN FRAME SBHG
540	895-10117	INVERTER ASSY 12VOLT 500VOLT KS
541	926-10054	SHIELD CASE INVERTER ET-C
550	809-10541	PWB(PCB) ASSY, SUB CTL NF99LA ZLD15A1
A1	206-03652	MANUAL, OWNERS NF99LA ZLD15A1
A2	924-10091	REMOTE CONTROLLER NF99LA ZLD15A1
A3	895-10118	ADAPTER, AC-DC AC110VOLT DC12VOLT
A4	812-10090	ADAPTER ANT RF

REF	PART#	DESCRIPTION



Critical safety components are identified by shading. Replace only with part numbers specified.

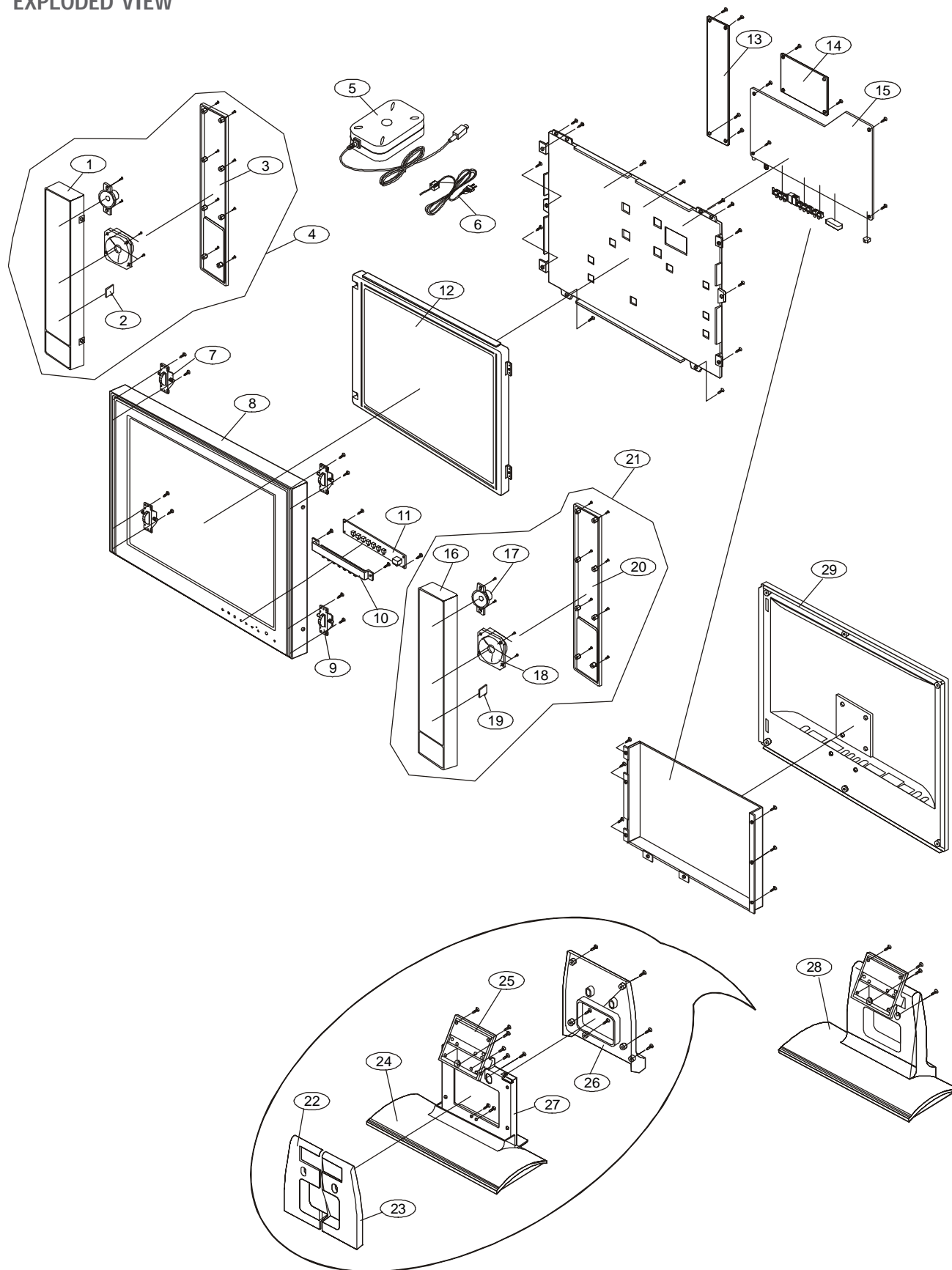


**ZLD20A1**

Location	Part Number	Description
1	804-10107	CASE,SPEAKER
2	849-10045	SPEAKER, GENERAL
2	809-10661	LEFT SPKR BRD
3	814-10196	SPEAKER REAR PANEL (L)
4	849-10048	SPEAKER W/CASE ASSY
5	895-10137	AC DC ADAPTER
6	811-10044	POWER CORD
7	836-10003	HANDLE ASSY ZLD20A1
8	857-10362	PANEL ASSY, FRONT
9	836-10002	HANDLE ASSY ZLD20A1
10	959-10110	BUTTON, CONTROL
11	809-10659	CONTROL BRD ASSY
12	900-10059	LCD 20 INCH
13	895-10136	INVERTER ASSY 15V
14	809-10658	SUB MODULE ASSY ZLD20A1
15	809-10657	MAIN MODULE ZLD20A1
16	804-10106	CASE,SPEAKER
17	849-10046	SPEAKER, TWEETER
19	809-10660	RIGHT SPKR BRD
20	814-10195	SPEAKER REAR PANEL (R)
21	849-10047	SPEAKER W/CASE ASSY
22	Part of 28	BRACKET FRONT LEFT
23	Part of 28	BRACKET FRONT RIGHT
24	Part of 28	METAL STAND BASE
25	Part of 28	METAL SHFT GUIDE SCP1
26	Part of 28	BRACKET STAND READ
27	Part of 28	METAL STAND
28	812-10155	STAND ASSY
29	814-10197	REAR CABINET MAIN

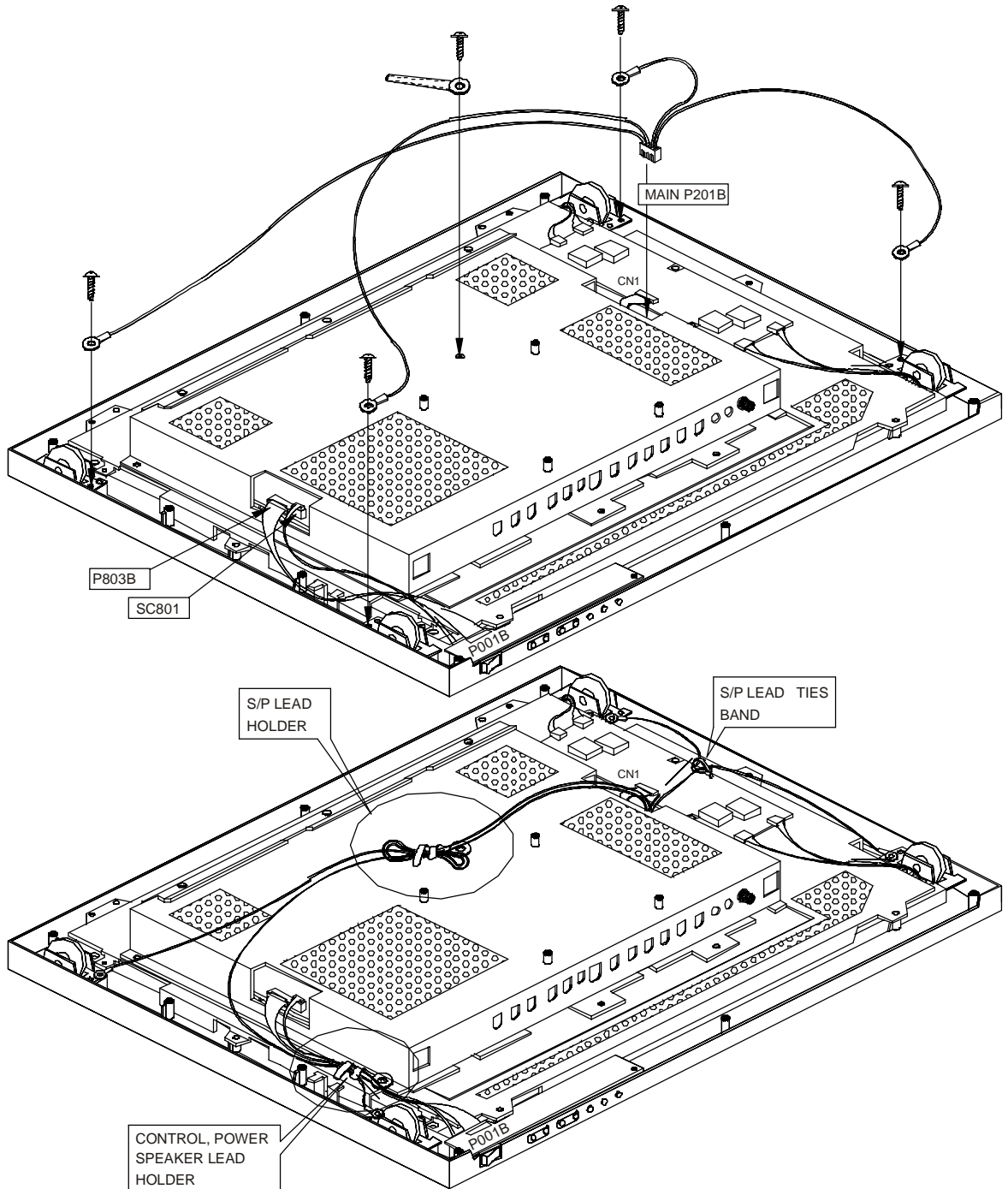
# ZLD20A1 DIAGRAMS

## EXPLODED VIEW



# ZLD20A1 DIAGRAMS

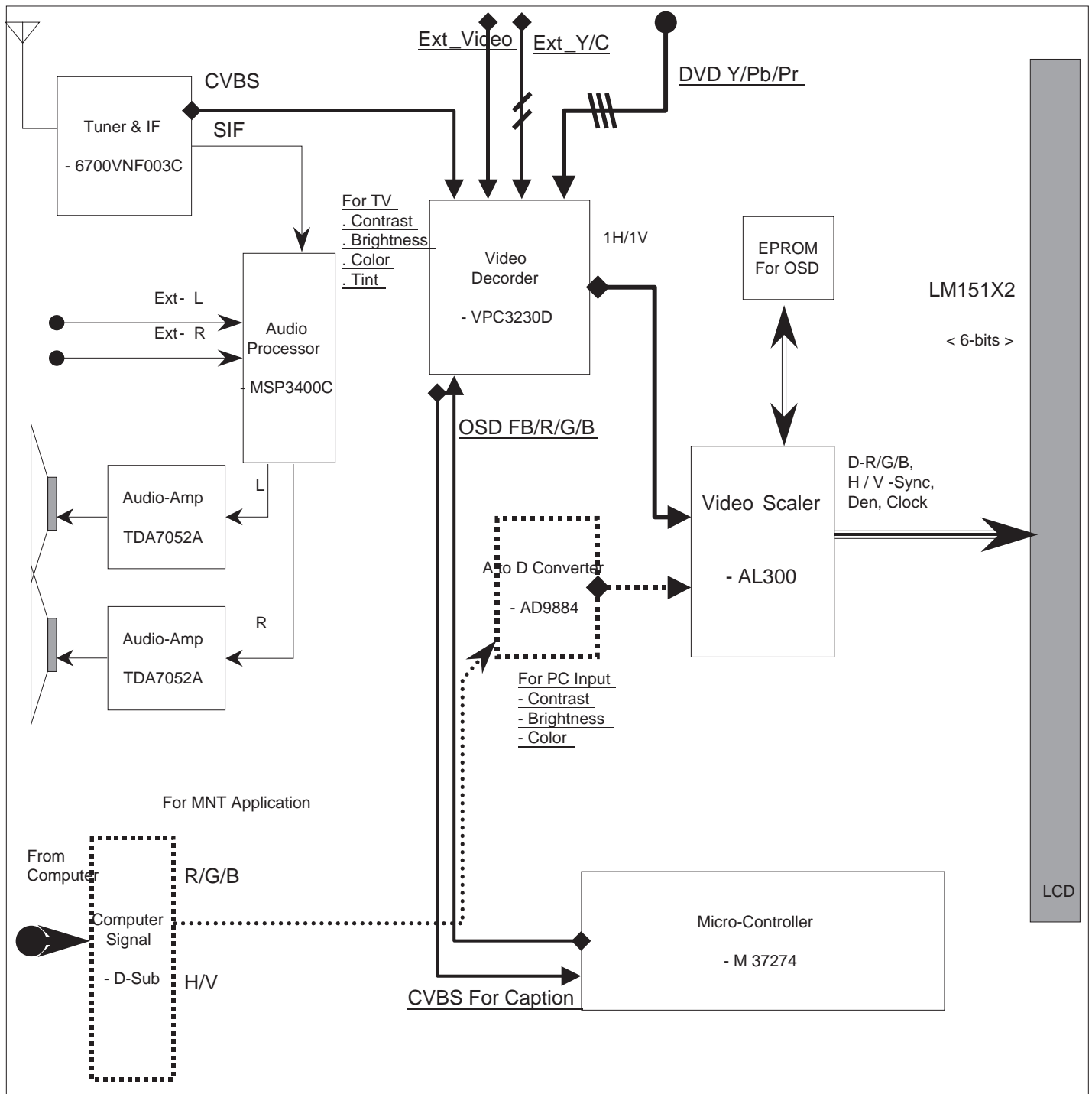
## WIRING DIAGRAM





# ZLD15A1 DIAGRAMS

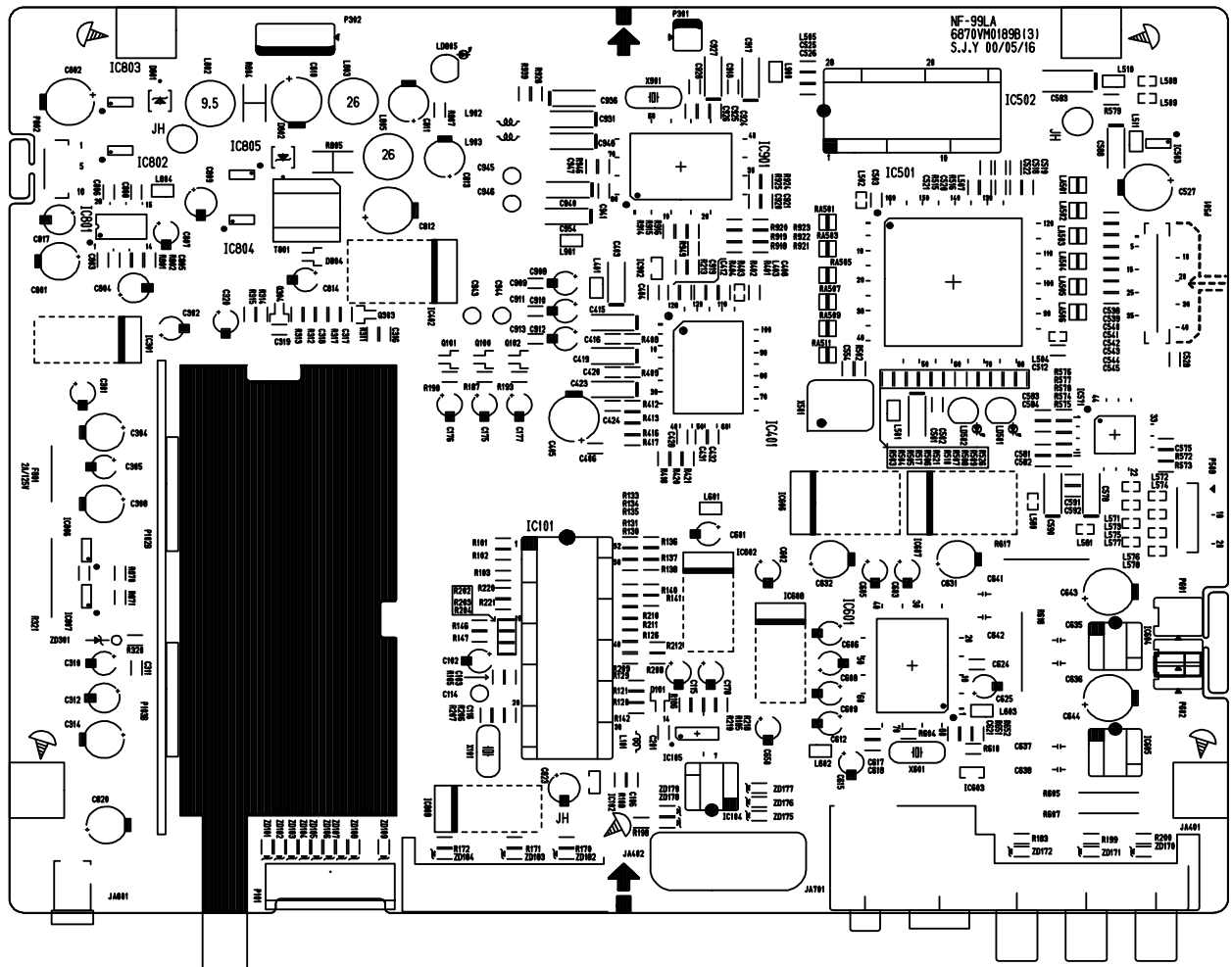
## BLOCK DIAGRAM



For MNT Application

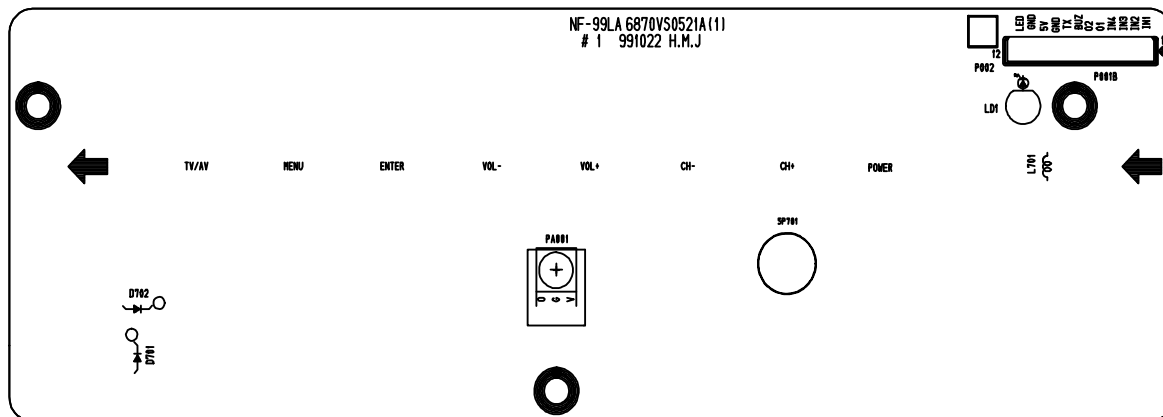
# ZLD15A1 PCB Main (Top)

MAIN(TOP)

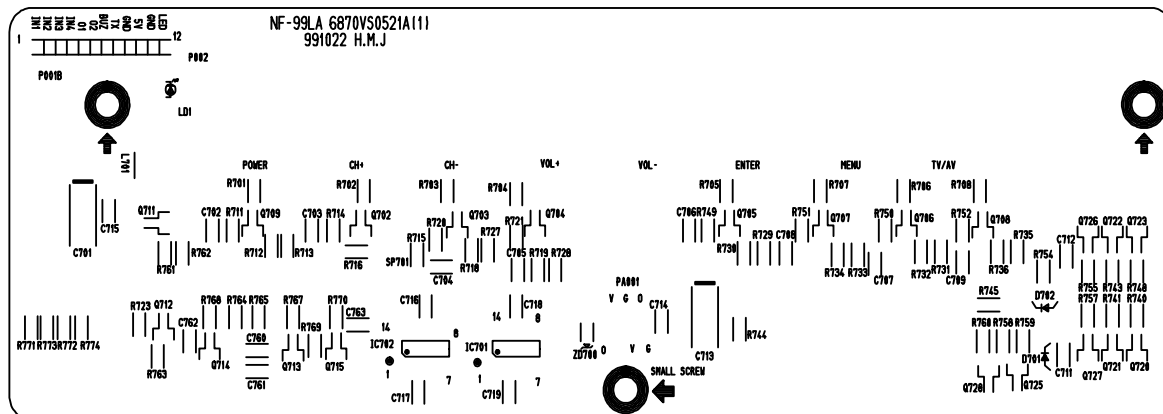


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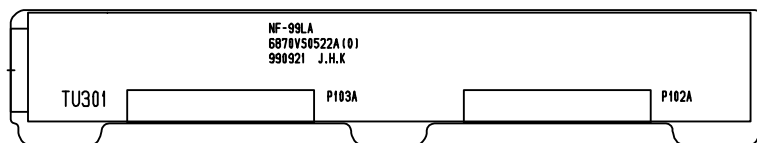
CTL(TOP)



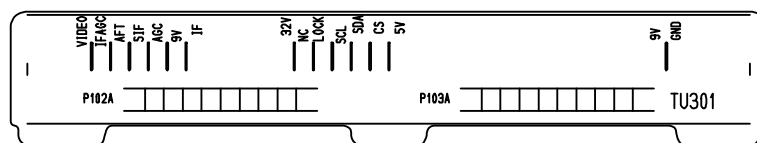
CTL(BOTTOM)



TUNER(TOP)

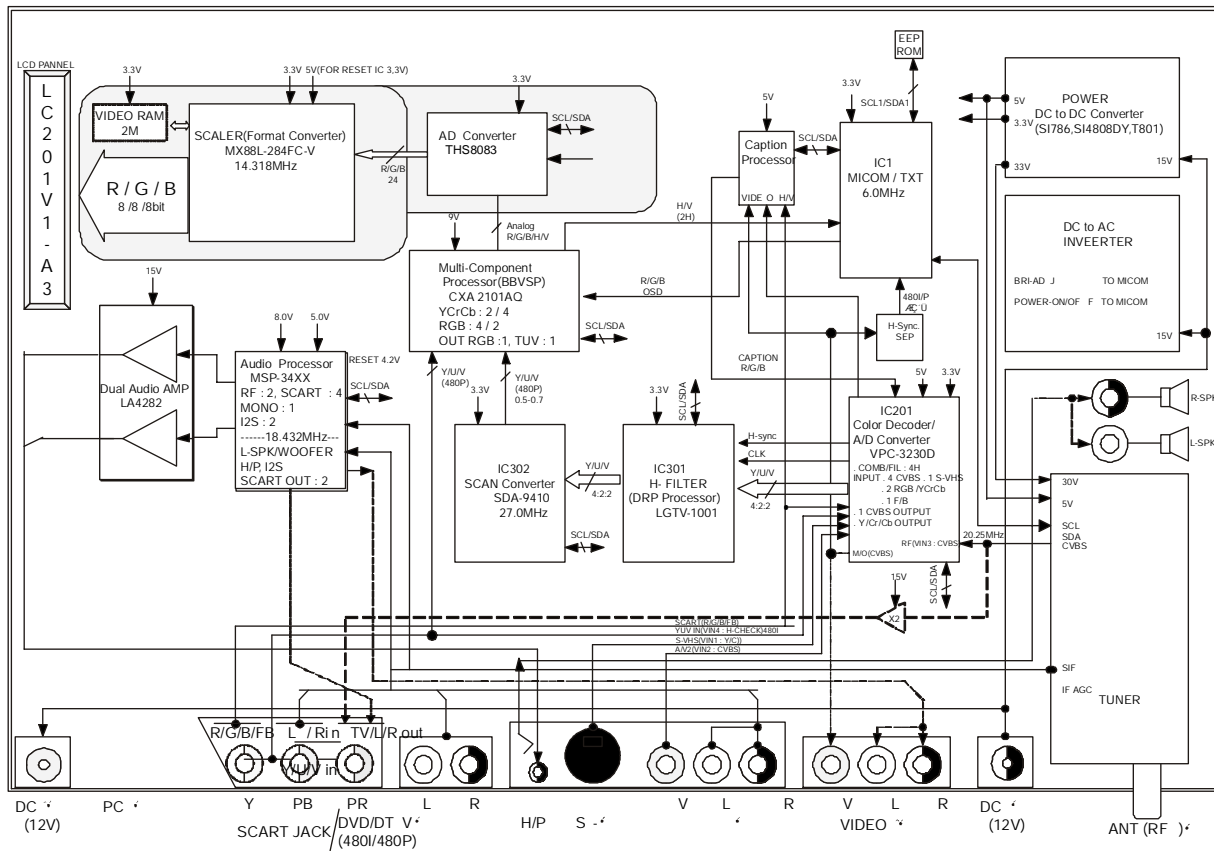


TUNER(BOTTOM)



# ZLD20A1 DIAGRAMS

## BLOCK DIAGRAM



# ZLD20A1 PCB LAYOUTS

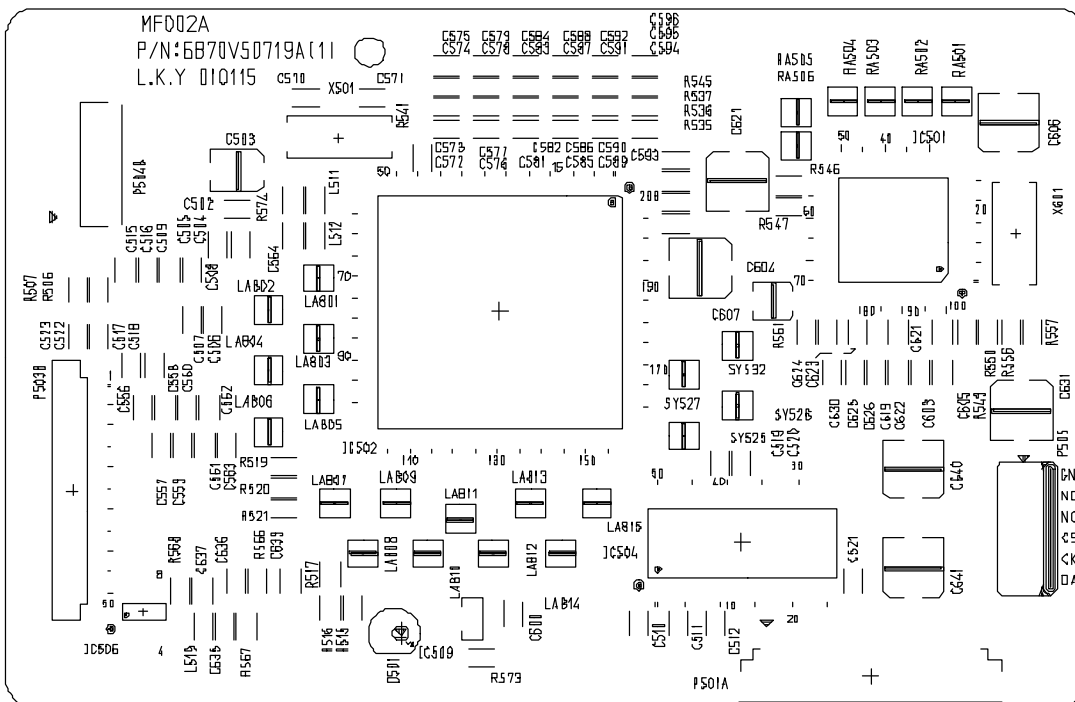
## MAIN PCB LAYOUT



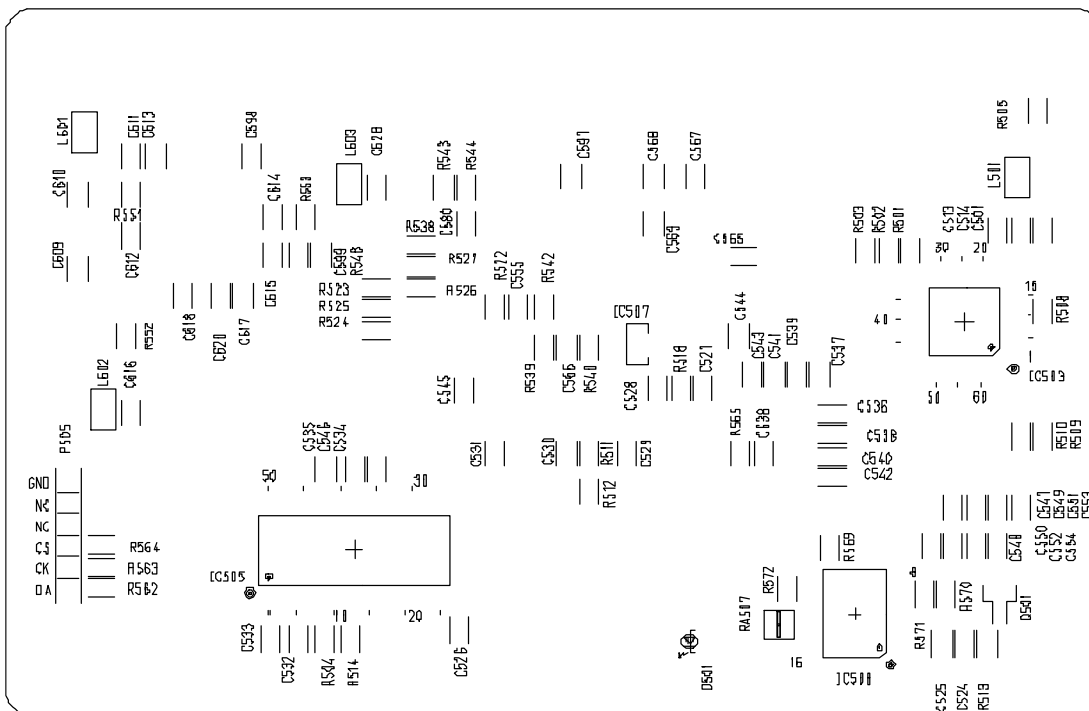
# ZLD20A1 PCB LAYOUTS

## MX PCB LAYOUT

### MX(TOP)



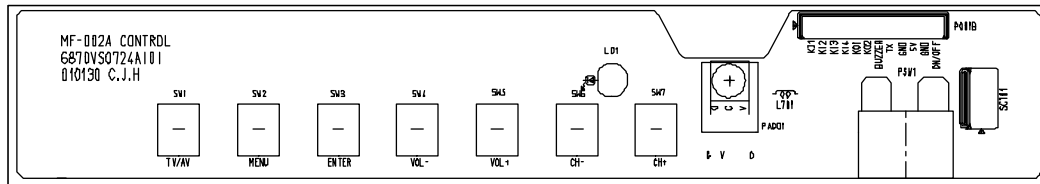
### MX(BOTTOM)



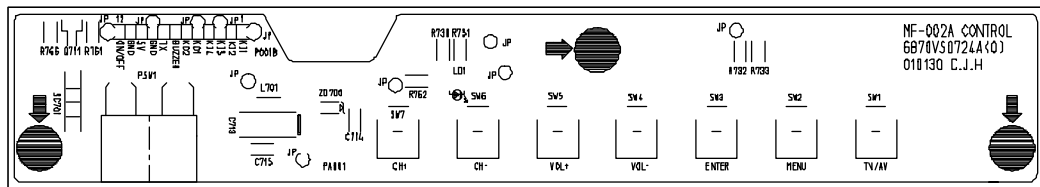
# ZLD20A1 PCB LAYOUTS

## CONTROL PANEL PCB LAYOUT

### CONTROL(TOP)

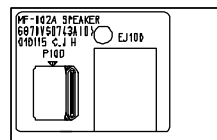


### CONTROL(BOTTOM)

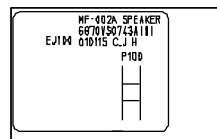


## SPEAKER CONNECT PCB LAYOUT

### SPEAKER(TOP)



### SPEAKER(BOT TOM)









zenith 